

L5/2,6,7,8

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☐ 1. Document ID: US 6504820 B1

L5: Entry 1 of 8

File: USPT

Jan 7, 2003

DOCUMENT-IDENTIFIER: US 6504820 B1

TITLE: Method and system for connection admission control

Abstract Text (1):

A method and system for Connection Admission Control (CAC) in a communications network, such as an ATM formatted B-ISDN network, is provided. Using end-to-end virtual path structures and class-of-service separation, various network virtual connections may be administered using a connection server based on a weighted round robin or similar connection-serving algorithm. Network users aware of the network structure and the means by which queue lengths are determined may easily calculate a Sustainable Cell Rate (SCR) for the traffic they wish to introduce into the network path for transmission to a given destination. The user declared SCR, in addition to other user declared traffic parameters, determines the queue lengths allocated in the network switches, such that a required level of Quality of Service is maintained. A measurement of certain types of transmitted cells in a virtual path, such as idle, unassigned, or low-priority cells, is made at any single point along the virtual path, such as at the source switch. This measurement of cells that may be considered to be "empty", i.e., available for use by high-priority cells, is used as the basis for a determination of the allowable connections that can be admitted to a virtual path. A relationship between the mean number of "empty" cells per scheduled cycle of the connection server and the cell rate bandwidth in cells-per-second that may be allowed to enter a virtual path that is already considered to be "full", based on the sum of the sustainable cell rates of its existing component connections, is used as the basis of CAC. Virtual connections may be admitted to a "full" virtual path if the cell rate of the requested connection is less than the allowable cell rate statistically determined from the mean number of "empty" cell timeslots in the path available for use by high-priority cells.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Keywords	Draw Desc	Image
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☐ 2. Document ID: US 6484212 B1

L5: Entry 2 of 8

File: USPT

Nov 19, 2002

DOCUMENT-IDENTIFIER: US 6484212 B1

TITLE: Proxy apparatus and method for streaming media information

Abstract Text (1):

A proxy apparatus and method for streaming media information via at least one network. When a user device communicates with the proxy apparatus using a particular bandwidth and requests that media information be provided from a media server, the proxy apparatus first determines if a version of the media information encoded for the user device's connection bandwidth has been stored in the proxy apparatus. If a

version of the media information encoded for the user device's bandwidth is not available from the proxy apparatus, the proxy apparatus sends a request to a media server for the media information. Once the media server receives the request, the media server begins to stream a copy of the media information encoded for the user device's bandwidth to the user device via the network and proxy device. If a version of the media information for the bandwidth is not available from the media server, the version for the largest bandwidth that does not exceed the bandwidth of the user device connection, is streamed to the user device. After the user device receives the media information, the proxy apparatus sends requests to the media server for versions of the same media information but encoded for different bandwidths. These copies of these various versions, along with the version actually received by the user device, are stored in a media storage device associated with the proxy device.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWNC	Draw Desc	Image
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☐ 3. Document ID: US 6459681 B1

L5: Entry 3 of 8

File: USPT

Oct 1, 2002

DOCUMENT-IDENTIFIER: US 6459681 B1

TITLE: Method and system for connection admission control

Abstract Text (1):

A method and system for Connection Admission Control (CAC) in a communications network, such as an ATM formatted B-ISDN network, is provided. Using end-to-end virtual path structures and class-of-service separation, various network virtual connections may be administered using a connection server based on a weighted round robin or similar connection-serving algorithm. Network users aware of the network structure and the means by which queue lengths are determined may easily calculate a Sustainable Cell Rate (SCR) for the traffic they wish to introduce into the network path for transmission to a given destination. The user declared SCR, in addition to other user declared traffic parameters, determines the queue lengths allocated in the network switches, such that a required level of Quality of Service is maintained. A measurement of certain types of transmitted cells in a virtual path, such as idle, unassigned, or low-priority cells, is made at any single point along the virtual path, such as at the source switch. This measurement of cells that may be considered to be "empty", i.e., available for use by high-priority cells, is used as the basis for a determination of the allowable connections that can be admitted to a virtual path. A relationship between the mean number of "empty" cells per scheduled cycle of the connection server and the cell rate bandwidth in cells-per-second that may be allowed to enter a virtual path that is already considered to be "full", based on the sum of the sustainable cell rates of its existing component connections, is used as the basis of CAC. Virtual connections may be admitted to a "full" virtual path if the cell rate of the requested connection is less than the allowable cell rate statistically determined from the mean number of "empty" cell timeslots in the path available for use by high-priority cells.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWNC	Draw Desc	Image
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☐ 4. Document ID: US 6427151 B1

L5: Entry 4 of 8

File: USPT

Jul 30, 2002

DOCUMENT-IDENTIFIER: US 6427151 B1

**** See image for Certificate of Correction ****

TITLE: Method, computer program product, system and data structure for formatting transaction results data

Abstract Text (1):

A method, computer program product, system, and data structure used in mapping data received from a centralized transaction processing system, such as the IMS system available from IBM, at the request of a remote application program or other client made across a communications network, such as the Internet. In one embodiment, a transaction code, a map identifier, and other information necessary for the transaction are sent to a centralized system or server. The transaction is executed on the transaction processing system and results data received therefrom. The map is then accessed in order to format the results data before returning it to the requesting client. One form of information that could be used within a map are source-destination triplets. In this instance, there is a source indicator, a destination offset into a buffer, and a length indicating how much to transfer from the indicated source into a buffer. The source indicator may be either a literal value or an offset into a results data set. An alternative form of map consists of offset-length pairs and literal value-length pairs, where the offset is the offset into the results data and the length is the amount of data to use therefrom into the formatted results data, and the literal value is placed directly into the formatted results data for the specified length. This allows the formatted results data to be tailored to the needs of the client thereby allowing reduced client sophistication and development cost, better bandwidth utilization since only relevant data is sent over the communications network, and higher data security since sensitive data may be prohibited from being sent over the public communications network, such as the Internet.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 5. Document ID: US 6356930 B2

L5: Entry 5 of 8

File: USPT

Mar 12, 2002

DOCUMENT-IDENTIFIER: US 6356930 B2

TITLE: Connection concentrator for distributed object systems

Abstract Text (1):

In a distributed object system, the services available on the network are modeled as network objects. A client typically communicates with and uses these objects using Internet connections. As the number of clients increase the servers can get overwhelmed by the number of connections coming into the server resulting in sluggish response and/or loss of service. The invention describes the mechanisms for reducing the required number of connections by automatically concentrating multiple connections onto a single connection. This is done by introducing shared intermediate connection concentrators called gateways. When the client invokes on an external object reference, the ORB running on the client automatically forwards the request to a gateway assigned to it, which then forwards it onto a shared connection to the server. The solution is symmetrical--if the server invokes on an object running inside the client, the invocation again flows through the gateway. The mechanisms described here do not require any explicit programming and can be turned ON or OFF via configuration. The disclosure also describes several policy and/or algorithm based schemes for assigning clients to gateways. Advantages of this invention include reduced interference, improved communication bandwidth, fault tolerance, modularity, scalability, and more efficient and cost-effective base stations and mobile stations.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 6. Document ID: US 5946322 A

L5: Entry 6 of 8

File: USPT

Aug 31, 1999

DOCUMENT-IDENTIFIER: US 5946322 A

TITLE: Hybrid access system utilizing credit/done polling protocols

Abstract Text (1):

An asymmetric network communication system for use in a client-server environment having independent forward and return channels operating at different speeds and/or under different protocols on the same or different communication media to provide efficient utilization of shared resources. A network manager, such as a hybrid access system, effects transmission of packetized data on a forward (downstream) channel from the host server to multiple client devices coupled with a shared downstream media at 10 or more megabits per second while simultaneously providing selectable multiple lower speeds of operation on shared or dedicated return (upstream) channels from the client devices to the host server depending on bandwidth availability, bandwidth demand, service level authorization, etc. for the return channel. Forward and return channels may be located on the same or different communication medium including a CATV network, direct broadcast satellite network, television or radio RF broadcast network, wireless or mobile cellular facilities or the like. The return channel may reside on a PSTN either directly coupled with the host server or connected with the network manager for subsequent transmission to the host server. The network manager handles or controls the forward and return communication to establish interactive full-duplex real-time network sessions between the host and a selected client device. The network manager switches upstream channel assignment based on quality of signals transmitted to the host, effects changes in the upstream transmitted power based on sensed conditions, and automatically configures new client devices as they are added to the network. The system issues data transmission credits to client devices for enabling them to independently transmit data without supervision up to their allowed credit limit thereby reducing polling for channel allocation requests.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 7. Document ID: US 5818845 A

L5: Entry 7 of 8

File: USPT

Oct 6, 1998

DOCUMENT-IDENTIFIER: US 5818845 A

TITLE: Hybrid access system having channel allocation and prioritized polling schemes

Abstract Text (1):

An asymmetric network communication system for use in a client-server environment having independent forward and return channels operating at different speeds and/or under different protocols on the same or different communication media to provide efficient utilization of shared resources. A network manager, such as a hybrid access system, effects transmission of packetized data on a forward (downstream) channel from the host server to multiple client devices coupled with a shared downstream media at 10 or more megabits per second while simultaneously providing selectable multiple lower speeds of operation on shared or dedicated return (upstream) channels from the client devices to the host server depending on

bandwidth availability, bandwidth demand, service level authorization, etc. for the return channel. Forward and return channels may be located on the same or different communication medium including a CATV network, direct broadcast satellite network, television or radio RF broadcast network, wireless or mobile cellular facilities or the like. The return channel may reside on a PSTN either directly coupled with the host server or connected with the network manager for subsequent transmission to the host server. The network manager handles or controls the forward and return communication to establish interactive full-duplex real-time network sessions between the host and plural client devices. The network manager effects upstream channel allocation in response to channel allocation requests and prioritizes polling wherein the polling cycles or periods differ among respective groups of client devices, depending on their state of operation.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 8. Document ID: US 5448559 A

L5: Entry 8 of 8

File: USPT

Sep 5, 1995

DOCUMENT-IDENTIFIER: US 5448559 A

TITLE: ATM communication system with interrogation of output port servers for available handing capacity

Abstract Text (1):

An ATM communication system has an ATM switch having a plurality of input ports and a plurality of output ports, each of the input ports being fed from an input port server and each of the output ports being arranged to feed an output port server. The input port servers each have a plurality of buffer stores, one for each of the output ports to which output port data is transmitted through the switch. Each buffer store in the input port servers is arranged to interrogate the output port server with which it communicates by a bandwidth request before the transmission of data. This determines whether output port server data handling capacity is available, whereby ATM switch operation during periods of peak traffic is facilitated. The system includes a queuing arrangement for bandwidth requests received during periods when there is no available bandwidth capacity, the arrangement being such that requests are released in a predetermined order when capacity becomes available.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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L5: Entry 8 of 8

File: USPT

Sep 5, 1995

DOCUMENT-IDENTIFIER: US 5448559 A

TITLE: ATM communication system with interrogation of output port servers for available handling capacity

Abstract Text (1):

An ATM communication system has an ATM switch having a plurality of input ports and a plurality of output ports, each of the input ports being fed from an input port server and each of the output ports being arranged to feed an output port server. The input port servers each have a plurality of buffer stores, one for each of the output ports to which output port data is transmitted through the switch. Each buffer store in the input port servers is arranged to interrogate the output port server with which it communicates by a bandwidth request before the transmission of data. This determines whether output port server data handling capacity is available, whereby ATM switch operation during periods of peak traffic is facilitated. The system includes a queuing arrangement for bandwidth requests received during periods when there is no available bandwidth capacity, the arrangement being such that requests are released in a predetermined order when capacity becomes available.

L5/6

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L5: Entry 6 of 8

File: USPT

Aug 31, 1999

DOCUMENT-IDENTIFIER: US 5946322 A

TITLE: Hybrid access system utilizing credit/done polling protocols

Abstract Text (1):

An asymmetric network communication system for use in a client-server environment having independent forward and return channels operating at different speeds and/or under different protocols on the same or different communication media to provide efficient utilization of shared resources. A network manager, such as a hybrid access system, effects transmission of packetized data on a forward (downstream) channel from the host server to multiple client devices coupled with a shared downstream media at 10 or more megabits per second while simultaneously providing selectable multiple lower speeds of operation on shared or dedicated return (upstream) channels from the client devices to the host server depending on bandwidth availability, bandwidth demand, service level authorization, etc. for the return channel. Forward and return channels may be located on the same or different communication medium including a CATV network, direct broadcast satellite network, television or radio RF broadcast network, wireless or mobile cellular facilities or the like. The return channel may reside on a PSTN either directly coupled with the host server or connected with the network manager for subsequent transmission to the host server. The network manager handles or controls the forward and return communication to establish interactive full-duplex real-time network sessions between the host and a selected client device. The network manager switches upstream channel assignment based on quality of signals transmitted to the host, effects changes in the upstream transmitted power based on sensed conditions, and automatically configures new client devices as they are added to the network. The system issues data transmission credits to client devices for enabling them to independently transmit data without supervision up to their allowed credit limit thereby reducing polling for channel allocation requests.

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L4: Entry 1 of 1

File: USPT

Jun 29, 1999

DOCUMENT-IDENTIFIER: US 5918002 A

TITLE: Selective retransmission for efficient and reliable streaming of multimedia packets in a computer network

Abstract Text (1):

An efficient and reliable transmission protocol for transmitting multimedia streams from a server to a client computer over a diverse computer network including local area networks (LANs) and wide area networks (WANs) such as the internet. The client computer includes a playout buffer for temporary storage of incoming data packets. When the client computer detects that a data packet has not arrived at said client computer by an expected time of arrival (ETA), a round trip time for the data packet is computed. The round trip time is an estimate of a period beginning from the time a retransmission request is sent to from the client computer to the stream server till the time a copy of the missing data packet is received at the client computer from the stream server in response to the retransmission request. If the round trip time is less than the time remaining before the missing packet is no longer useful to the on-demand application, then a retransmission request packet is sent to the server. Conversely if the round trip time is greater than the time remaining, i.e., the missing packet is likely to arrive after the usefulness of the packet has expired, then sending a retransmission request is likely to result in the late arrival of the missing data packet. Accordingly, the missing packet is discarded. This selective retransmission protocol can also be practiced with dynamic bandwidth selection wherein the transmission rate is dynamically matched to the available bandwidth capacity of the network connection between the server and the client computer.